Course Outline

Course Code : MKT4721
Course Title : Customer Analytics & Visualization
Semester : Semester I, AY 2023/2024
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Overview

Today's businesses are bombarded with customer data. It is a key skill to be able to extract insights from data so that businesses can develop marketing intelligence. To achieve this objective, this module is designed with two integrated components: data analytics and visualisation. We will start with understanding how to use data to solve business problems. Then, we introduce various tools and techniques. Subsequently, we apply data communication to win the buy-in of the relevant decision makers within the organisation.

Module Objectives

Upon completion of this module, you will be able to:

- Understand the analytics process: from data to decision
- Learn principles and techniques of customer analytics and visualization
- Discover hidden insights in data and inform marketing decisions
- Obtain stakeholders' buy-in through data communication

General Guide & Reading (e.g., Case preparation guide, project report guide, main textbook & supplementary materials, etc)

- Learning materials developed by the instructor
- Software: Tableau (Tableau for Students 1-year free licence), Orange (Free open source machine learning software).

Assessment

Assessment Components	Weightage
Participation	10%
Quiz (2 x 10%)	20%
Project (Part I 20%, Part II 30%)	50%
Individual Assignment	20%
Total	**100%**

Participation (10%)
- Attendance, participation in class and Canvas Forum Discussions

Quiz (20%)
2 quizzes, 10% each
- MCQ and T/F

Individual Assignment (20%)
Datasets will be provided. You should
1. Identify 5 business questions that can be solved using the selected dataset (5%)
2. Create relevant metrics and KPIs as success criteria (5%)
3. Design at least 5 data visualizations, one dashboard, and use data story to answer business questions (10%)
- Submission: Tableau workbook, dataset(s)
    o Software: Tableau

Project Part I (20%)
1. Choose a customer or marketing related open-source dataset(s); it should have at least 10 variables
2. Make necessary assumptions of business context and company background (of the selected dataset)
3. Identify at least 5 relevant business questions
4. Create appropriate metrics and KPIs as success criteria
5. Use data visualisations to answer those business questions
6. Identify your target audience, design visualisation dashboard(s) and data story
- In-class presentation: 15min
- Submission: Tableau workbook, dataset(s)
    o Software: Tableau

Project Part II (30%)
1. Choose a customer or marketing related open-source dataset(s); it should have at least 10 variables (you can use the same dataset of Part I)
2. Make necessary assumptions of business context and company background (of the selected dataset) Identify at least 2 relevant business questions which can be solved using customer analytics techniques (e.g. customer churn prediction and customer segmentation) (5%)
3. Perform necessary data preprocessing such as data transformation, imputation and etc. (5%)
4. Use appropriate Customer Analytics techniques to solve business problems (15%)
5. Communicate to your target audience using data storytelling (5%)
- In-class presentation: 15min
- Submission: Orange workbook, dataset(s), PPT slides
    o Software: Orange

- Peer Assessment (Optional): Evaluation of overall performance in team assignment and project by team members including quality of work, timeliness, task support, responsibility, involvement and leadership

Academic Honesty & Plagiarism

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is "the practice of taking someone else's work or ideas and passing them off as one' own" (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubt, you should consult your instructor.

Additional guidance is available at:

- http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct
- http://nus.edu.sg/osa/resources/code-of-student-conduct

Schedule and Outline

Lesson/ Week	Topic	Activity
1	• Intro to Customer Analytics process	
2	• Customer Analytics: Measure what matters • Workshop: Tableau fundamentals	
3	• Create Data Visualisations • Workshop: Advanced Analytics with Tableau	
4	• Design Data Visualisations Dashboard • Workshop: Tableau Dashboard Design	
5	• Data Communication: Data Storytelling • Workshop: Tableau Story	
6	• Industry Case Study using Tableau • Customer Analysis • Sales Analysis	Quiz 1 (10%)
Recess Week		
7	• Project Part I Presentation	Project Part I Due (20%) Individual Assignment Due (20%)
8	• Predictive Analytics I • Orange workshop: sales forecasting	
9	• Predictive Analytics II • Orange Workshop: Customer Churn Analysis	
10	• Industry Case Study using Orange • Price Forecasting • Attrition analysis	
11	• Clustering Analysis • Orange Workshop: Customer Segmentation	
12	• Text Analytics and Visualisations • Orange Workshop: Detect Customer Sentiments • Industry talk: Meeting with Data Scientists	Quiz 2 (10%)
13	Project Part II Presentation	Project part 2 submission due (30%)